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Listing of Claims

The following listing of claims will replace all prior versions, and listings, of claims in the subject application:

1. (currently amended) An image data collection control method for collecting multiple pieces of image data from an image data collection range including a periodically moving part of an object to be examined, the method comprising:

a periodic motion data obtaining a step of obtaining periodic motion data indicating a change of a periodic motion with time;

an image data collection condition setting a step of setting obtaining a time range so that the time resolution is within the desired range on an image data collection condition for allowing the image data of the image data collection range to have based on the periodic motion data and a relationship among a time resolution of an image obtained, image data collection conditions and periodic motion within a desired range;

an image data collection position control a step of relatively moving at least a part of the controlling an image data collection range and a collection starting position of the image data such that the part of the time range and the collection position are superimposed on each other within a time when the image data of matches the image data collection range has a time resolution within the desired range based on the image data collection condition; and

an image data collecting a step of collecting the image data of at least the part of starting the image data collection range on from the image data collection starting position.

2. (currently amended) The image data collection control method according to claim 1,

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~~wherein the image data collection condition setting step includes~~ <u>further comprising</u>:

a projected image obtaining step of obtaining a projected image of the object, and

an image data collection range designating step of designating the image data collection

range based on the projected image.

3. (original) The image data collection control method according to claim 2, wherein in

the image data collection range designating step, the image data collection range is designated by

designating a starting position and an end position of collection of the image data in the projected

image.

4. (original) The image data collection control method according to claim 2, wherein the

image data collection condition setting step includes, before the image data collection range

designating step, a time resolution estimating step of estimating a fluctuation in a time resolution

of the image data with time based on the periodic motion data, and

in the image data collection range designating step, a time resolution graph and the

projected image are superimposed on each other, the time resolution graph indicating the

fluctuation in the time resolution of the image data with time.

5. (original) The image data collection control method according to claim 4, wherein in

the image data collection range designating step, the desired time resolution range in the time

resolution graph is superimposed so as to correspond to the image data collection range in the

projected image.

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6. (original) The image data collection control method according to claim 4, wherein in the time resolution graph, at least points ranging from a start point corresponding to a start time of image data collection in the time resolution graph to an end point corresponding to a stop time of image data collection are respectively superimposed on positions ranging from a starting position to an end position of image data collection in the projected image.

7. (original) The image data collection control method according to claim 4, wherein in the image data collection range designating step, input is received for designating or changing at least one of a position of the time resolution graph and a position of a part of the graph, and at least one of the image data collection range and the desired time resolution range is designated or changed based on the input.

8. (original) The image data collection control method according to claim 4, wherein in the image data collection range designating step, a numeric value indicating a position on the projected image is displayed, the position corresponding to at least one of points of the time resolution graph, input is received to change the numeric value, and relative positions of the time resolution graph, at least one of the points of the graph, and the projected image are changed based on the input.

Claim 9 (canceled).

10. (original) The image data collection control method according to claim 4, wherein in the image data collection position control step, the image data collection range and the image

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data collection position are relatively moved so as to keep a positional relationship between an

elapsed time in the time resolution graph and the image data collection range in the projected

image, and

the relative movement and the image data collecting step are simultaneously performed.

11. (currently amended) The image data collection control method according to claim 1,

~~wherein the image data collection condition setting step includes~~ further comprising:

a step of determining a suitable change of the periodic motion data such that the image

data of the image data collection range has [[a]] the time resolution within the desired range,

and

a step of displaying a change of the periodic motion data with time and the suitable

change.

12. (original) The image data collection control method according to claim 11, wherein a

combination of the suitable change and a speed of the relative movement is calculated in the

image data collection condition setting step, and the image data collection range and a collection

position of the image data are relatively moved in the image data collection position control step.

13. (original) The image data collection control method according to claim 11, wherein

the periodic motion data obtaining step is repeated until the change of the periodic motion data

falls below a predetermined value.

Claims 14-15 (canceled).

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16. (currently amended) An image data collection system for collecting multiple pieces of image data from an image data collection range including a periodically moving part of an object to be examined, the system comprising:

a periodic motion data obtaining means for obtaining periodic motion data indicating a change of a periodic motion with time;

an image data collection condition setting means for ~~setting~~ obtaining a time range so that the time resolution is within the desired range on an image data collection condition ~~for allowing the image data of the image data collection range to have~~ based on the periodic motion data and a relationship among a time resolution of an image obtained, image data collection conditions and periodic motion ~~within a desired range~~;

an image data collection position control means for ~~relatively moving at least a part of the~~ controlling an image data collection ~~range and a collection~~ starting position ~~of the image data~~ such that ~~the part of~~ the time range ~~and the collection position are superimposed on each other within a time when the image data of~~ matches the image data collection range ~~has a time resolution within the desired range based on the image data collection condition~~; and

an image data collecting means for ~~collecting the image data of at least the part of~~ starting the image data collection ~~range on~~ from the image data collection starting position.

17. (original) The image data collection system according to claim 16, wherein the image data collection condition setting means estimates a fluctuation in the time resolution of the image data with time based on the periodic motion data before designating the image data collection range, and

the image data collection condition setting means superimposes a time resolution graph

and the projected image, the time resolution graph indicating the fluctuation in the time

resolution of the image data.

Claims 18-19 (canceled).

20. (original) The image data collection system according to claim 16, wherein the image

data collecting means is an X-ray CT apparatus comprising:

an X-ray source for emitting an X-ray, an X-ray detector which is opposed to the X-ray

source with the object being interposed between the X-ray source and the X-ray detector and

detects the X-ray to output X-ray transmission data, a rotating means capable of rotating with the

X-ray source and the X-ray detector, a table on which the object is laid, a table controller for

controlling a table moving speed for moving the table, an image processing means for generating

a tomogram of the object based on the X-ray transmission data, and a display means for

displaying the tomogram,

the periodic motion data obtaining means is a heart rate meter for measuring and

obtaining a heart rate of the object,

the image data collection condition setting means calculates a combination of a change of

the periodic motion data and the table moving speed to obtain the desired time resolution, and

the table controller moves the table according to the table moving speed.

21. (original) The image data collection system according to claim 16, wherein the image

data collecting means is a magnetic resonance imaging apparatus including:

a control unit having a predetermined scanning sequence, a magnetic field generating

means for generating, in response to control of the control unit, a gradient magnetic field and a

high frequency magnetic field in a static magnetic field space in which the object is laid, and a

signal processing means for measuring an NMR signal generated from the object and imaging

the signal, and

the periodic motion data obtaining means obtains a body movement navigation signal of

the object.

Claim 22 (new).   An image data collection system for collecting image data in an

image data collection range including a periodically moving part of an object to be examined, the

system comprising:

a device for displaying a graph indicating fluctuations in an estimated time resolution

of an image obtained on a part of the object with time information with a projected image of the

object, in advance of image data collection.